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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/524,561	02/14/2005	Reinhard Maier	32860-000836/US	1046
30596	7590	06/28/2006	EXAMINER	
HARNESS, DICKEY & PIERCE, P.L.C.			PATEL, PARESH H	
P.O.BOX 8910			ART UNIT	
RESTON, VA 20195			PAPER NUMBER	
			2829	

DATE MAILED: 06/28/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/524,561

Applicant(s)

MAIER ET AL.

Examiner

Paresh Patel

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 15 May 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) 7-15 and 17-20 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-6 and 16 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 14 February 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

## DETAILED ACTION

### *Election/Restrictions*

1. Applicant's election without traverse of Group I, claims 1-6 and 16 in the reply filed on 05/15/2006 is acknowledged.

### *Claim Rejections - 35 USC § 103*

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1-6 and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Harner (US 3522515) in view of Motosuke (JP 10-170615), Ratz (US 3289078) and Cameron et al. (US 6028426).

Regarding claim 1, Harner discloses a method for current measurement at a potential which is at higher value than zero potential [fig. 1, 10 138-750 kv], comprising:

measuring the current value in the form of a analog signal;

transmitting the measured information, in the form of a digital signal to an evaluation unit which is at ground potential [lines 39-43 of column 1],

wherein characterized in that the analog signal is subjected to compression before transmission, and the signal is subjected to expansion after transmission at ground potential [line 66 of column 3 to line 6 of column 4].

Harner is silent about transmitting the measured information, after **A/D conversion**, in the form of a **digital signal** to an evaluation unit which is at ground potential, wherein characterized in that the analog signal is subjected to compression before **A/D conversion** and transmission, and **the digital signal** is subjected to expansion after transmission at ground potential.

Since, digital conversion is known in the art to generate clock pulse for modulating the signal, it is common knowledge to use A/D conversion for generating the modulated transmitted signal clock pulse. Motosuke discloses an electric current measured by a shunt resistance and measured data is modulated to a carrier wave signal after A/D conversion performed by modulator 4. Therefore, it would have been obvious to a person having ordinary skill in the art at the time the invention was made to use A/D conversion as taught by Motosuke with Harner, to obtain advantages that Motosuke has to offer (see paragraph 0004 and 0005 at page 4).

Regarding claim 2, Harner discloses compression and expansion are **effected logarithmically** [line 66 of column 4 to line 6 of column 4, particularly last two lines],

Regarding claim 3, Harner and Motosuke discloses all the elements except for compression and expansion are effected **on the basis of the stipulation of root functions**. Rather, Harner discloses compression and expansion are effected logarithmically [see line 66 of column 4 to line 6 of column 4, particularly last two lines]. Ratz discloses root functions at lines 7-42 of column 2 to reduce ripple error while feeding the signal to the transmitter. Therefore, it would have been obvious to a person having ordinary skill in the art at the time the invention was made to use square root

function of Ratz with the combination of Harner and Motosuke for the advantages that Ratz is offering.

Regarding claims 4-5 and 16, Harner and Motosuke discloses all the elements but silent about the measuring device and shunt are thermally coupled and temperature compensation is effected. Cameron et al. (hereafter Cameron) discloses an apparatus for measuring an electric current including conductive shunt and a temperature sensor for sensing the temperature of the shunt and voltage drop across shunt has known dependence upon temperature of the shunt including compensation. Therefore, it would have been obvious to a person having ordinary skill in the art at the time the invention was made to modify the combination of Harner and Motosuke with temperature compensation as taught by Cameron, to reduce the error while measuring the current.

Regarding claim 6, Harner discloses all the elements including transmission of compressed information and Motosuke discloses supply current modulation as further claimed.

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Paresh Patel whose telephone number is 571-272-1968. The examiner can normally be reached on 8:00 to 4:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ha Nguyen can be reached on 571-272-1678. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



Paresh Patel  
Primary Examiner  
Art Unit 2829

June 22, 2006